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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Olivier Marce

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EXAMINER

DYKE, KERRI M

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/090,748	MARCE, OLIVIER	
	Examiner	Art Unit	
	Kerri M. Dyke	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/15/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 6 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Software is non-statutory subject matter.

35 USC § 112

3. The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

4. Claim 6 is not being treated under the sixth paragraph of 112. The inclusion of the term software is an attempt to recite structure for performing the function invoked by the means plus function language. Therefore, claim 6 fails the third prong of the three prong test for invocation of treatment under the sixth paragraph of 112. If the applicant wishes for claim 6 to be treated under 112 sixth paragraph the claim must be amended so that it complies with the three prong test, see MPEP § 2181. Also, if the claim is amended for compliance with 112 sixth paragraph, applicant is reminded that sufficient structure must be recited in the specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over TraceRoute, which is applicant admitted prior art, in view of the definition of a binary search.

7. In regards to claim 1, TraceRoute discloses a method of tracing a route between an origin node and a target node of a TCP/IP data network, the method consisting of defining a route tracing function having for parameters a start distance and an end distance and including the following steps:

- a. sending a message to said target node, with a time to live equal to an intermediate value between the start and end distances,
- b. receiving a response and:
 - i. if said response comes from the target node, storing it in the list of known nodes

Applicant discloses on page 2 that a basic TraceRoute program sends packets with increasing Time to Live parameters, which indicates that at least some of the messages will have a time to live equal to an intermediate value between the start and end distances. Applicant further discloses on page 2 that a basic TraceRoute program stores the responses, including that from the target node into the list of known nodes.

TraceRoute does not disclose:

- c. stopping the recursive processing of the function if the start and end difference differ by one unit,
- ii. and executing the tracing function recursively with the start distance and the target node distance as parameters,

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- iii. if said response is a Time To Live Exceeded message coming from an intermediate node in said list of known nodes, executing the tracing function recursively with the intermediate node distance and said end distance as parameters, and
- iv. if said response is a Time To Live Exceeded message coming from an intermediate node that is not in said list of known nodes, storing said intermediate node in the list of known nodes and executing the tracing function recursively, a first time with the start distance and the intermediate node distance as parameters and a second time with the intermediate node distance and the end distance as parameters, and initially executing said route tracing function with a start distance equal to 0.

The definition of a binary search discloses that the recursive search ends when the interval is empty, i.e. when the start and end differ by one unit. (Although the definition of binary search does not explicitly state that the search is recursive that fact is implied. Use of recursion is also supported by the fact that binary search is a type of divide and conquer algorithm and the definition of such an algorithm does explicitly disclose recursion.) The definition of binary search also discloses step iii when it states that the interval is narrowed. Binary search does not explicitly disclose step iv, but the current structure of the claim makes that unnecessary. The broadest interpretation of the claim can be read as receiving a response and then executing one of the following three options. If any of the three options is found the claim can be rejected. However, binary search is by definition a divide and conquer search. A

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divide and conquer search operates in the manner described by step iv, i.e. each piece is solved independently and then the solutions are combined to reach the final solution.

It would have been obvious to one of ordinary skill in the art to develop a binary search strategy for TraceRoute because a binary search is faster and more efficient than a linear search, which is the current search method employed by basic TraceRoute programs.

8. In regards to claim 2, TraceRoute and binary search disclose a method according to claim 1, wherein said intermediate value is equal to the average of the start and end distances. Binary search discloses that the intermediate value is the middle of the array. Since the entire interval of the array is used the average of the start and end distances is the middle value.

9. In regards to claim 4, TraceRoute and binary search disclose a method according to claim 1, wherein said time to live is stored in a Time To Live field conforming to RFC 791. On page 2, applicant discloses that TraceRoute makes use of time to live. It is implied that the time to live field in accordance with RFC 791 would be used for the time to live parameter for several reasons. First, RFC 791 was published in 1981 and therefore was well known by the time the first TraceRoute was developed in 1988. Second, the purposed of an RFC is to establish standards in order to ensure the interoperability of devices. Third, the name time to live parameter itself implies that the parameter will be stored in the time to live field disclosed by RFC 791.

10. In regards to claim 5, TraceRoute and binary search disclose a method according to claim 1, wherein said message and said response conform to the ICMP defined by RFC 792. Claim 5 is rejected upon the same grounds as claim 4, i.e. the parameters of RFC 792 were well known

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by the time the first TraceRoute was developed and it is advantageous to follow the standards defined by an RFC for compatibility.

11. In regards to claim 6, TraceRoute and binary search disclose software including means for implementing the method according to claim 1. Due to the recursive nature of binary search and the difficulty of carrying out a recursive search without a software program, the presence of software to complete the binary search is implicitly disclosed.

Allowable Subject Matter

12. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gruber discloses a TraceRoute method.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerri M. Dyke whose telephone number is (571) 272-0542. The examiner can normally be reached on Monday through Friday, 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmd


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2200 1/30/06